

ICDR TOOLKIT

Health Information Technology (IT) Toolkit

A Compendium of
Accessible & Usable
Health IT Resources



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Introduction

The Affordable Care Act prompted the development of patient-centered health information technology (health IT). Health IT refers to the “use of information and communication technologies in caring for patients, tracking disease, protecting public health, conducting research, and improving the health of individuals and populations” (The Office of the National Coordinator for Health Information Technology [ONC], 2020). Simply put, health IT allows people to access and exchange their health information electronically. People with access to their health information can remotely track and manage their health care, but accessing and understanding this information is not always easy (Office of Disease Prevention and Health Promotion, 2020). Many health IT systems are not accessible or usable (Interagency Committee on Disability Research, 2015).

In 2015, the Interagency Committee on Disability Research (ICDR) sponsored *Accessibility and Usability in Health IT: A Research and Action Conference to Empower People with Disabilities, Older Adults, and Caregivers*. This conference found that users, developers, accessibility experts, caregivers, and vendors were unaware of many existing resources that can lead to more usable and accessible health IT (ICDR, 2015). Based on these findings, research-based information about accessibility and usability standards should be made readily available to encourage accessible and usable design of health IT systems and to ensure people with disabilities are not excluded from taking advantage of these technologies (ICDR, 2018).

Encouraging strategies that simplify and support the use of health IT can help make it easier to access, use, and understand (Office of Disease Prevention and Health Promotion, 2020). Following the principles of universal design and considering people with disabilities in the development of health IT systems could have a

significant impact on the effectiveness and adoption of health IT systems by people who could benefit the most from them.

About the Interagency Committee on Disability Research (ICDR)

The ICDR was authorized by the amended 1973 Rehabilitation Act to promote coordination and collaboration among federal departments and agencies conducting disability, independent living, and rehabilitation research programs, including programs relating to assistive technology research and research that incorporates principles of universal design.

The ICDR adopted a vision to be widely recognized for facilitating and coordinating federal interagency efforts and for promoting collaborative relationships that maximize the best use of federal resources for disability, independent living, and rehabilitation research. The ICDR has a long history of promoting collaboration and coordination across the government to meet the needs of the disability community and leverage limited resources. In its 2018–2021 Strategic Plan, the ICDR developed the following three goals:

Goal #1: Improve interagency coordination and collaboration in four thematic research areas: transition, economics of disability, accessibility, and disparities.

Goal #2: Develop a government-wide inventory of disability, independent living, and rehabilitation research.

Goal #3: Promote ongoing stakeholder input on gaps and priorities for disability, independent living, and rehabilitation research.

To address Goal #1 (improve interagency coordination and collaboration), the ICDR initiated a focus on creating materials to promote and encourage accessible and usable health IT.

Purpose of this Toolkit

To increase the reach of health IT to all Americans, including those with disabilities and older adults, health IT must be accessible and usable for consumers and providers. Having accurate and accessible information is pivotal in supporting health IT in the health care ecosystem. The purpose of this toolkit is to highlight resources, research, and best practices across federal agencies, federal grantees, and non-federal entities related to ensuring and encouraging that health IT is accessible and usable. This toolkit is designed to be a compendium of resources to help further research and development of health IT that is accessible and usable. It is meant to help facilitate future research and collaboration by federal agencies and departments and presents recommendations related to accessible and usable health IT.

Background

What is Health IT

The U.S. Department of Health and Human Services (HHS) defines health IT as the use of information and communication technologies in caring for patients, tracking diseases, protecting public health, conducting research, and improving the health of individuals and populations (ONC, 2020). Health IT has evolved over the years from being one tool to being a key part of the health care delivery system.

Health IT helps to deliver care, treat illness, and improve health outcomes.

The U.S. is rapidly developing and implementing interconnected health IT ecosystems to improve the quality of care. Health IT helps to deliver care, treat illness, and improve health outcomes as well as address the social, economic, and environmental factors that influence population health (ONC, 2020). Health IT is used by many across the health care ecosystem:

- **Individual patients and caregivers** use patient portals and apps to access their health information, manage their treatment, and interact with their health care providers. They can also access remote care via telehealth so they stay connected to care when they are unable to physically travel to an office, including if they cannot travel or if they live in an area with limited access to care (ONC, 2020).

- **Providers and organizations** use health IT to manage patients' health information, make clinical decisions, and create care plans. Health IT also allows providers to engage more immediately with their patients or patients' caregiver (ONC, 2020).
- **Researchers and community-based organizations** use health IT outside of care settings to collect and analyze data across populations. They can use this data to track public health activities and to work to address disparities in care to improve outcomes. Health IT also helps in disease surveillance and management (ONC, 2020).
- **Payers** use health IT to understand their members, analyze costs, and to support care management (ONC, 2020).

ICDR Conference on Accessibility and Usability in Health IT

In 2015, the ICDR hosted a conference on accessibility and usability in health IT. The conference was designed as a research and action conference to empower people with disabilities, older adults, and caregivers. The purpose of the conference was to advance the priority of accessibility in health IT systems and tools from a compliance-oriented approach toward one that is user-driven, responsive to human-centered consumer experiences, and results in increased patient engagement and improved health and wellness for individuals with disabilities, older adults, and caregivers (ICDR, 2015). The conference included thought leaders representing users, providers, health IT research and development, and federal leadership. Participants shared their perspectives of current issues and potential levers of change to move the agenda for accessible and usable health IT forward.

SUMMARY OF FINDINGS AND RECOMMENDATIONS

Throughout the conference, the following four themes emerged:

1. Health IT users with disabilities, older adults, and caregivers need to be at the center of health IT development.
2. The federal government is an important lever in promoting accessible and usable health IT.
3. Interoperability between health IT systems and applications is an urgent and complex systems integration issue that will require time, money, and talent to fix.
4. Collaboration and building on existing solutions can spur more usable, accessible, and frugal health IT development.

The following three actionable strategies were identified:

1. Push forward potential policy levers of change to promote the accessibility and usability agenda.
2. Strengthen collaboration and partnerships.
3. Catalyze research and development of accessible and usable health IT.

Accessibility, Usability, and Interoperability

According to the World Wide Web Consortium (W3C), an international community that develops open standards, *accessibility* addresses discriminatory aspects related to equivalent user experience for people with disabilities. Web accessibility means that people with disabilities can equally perceive, understand, navigate, and interact with websites and tools. Web accessibility also means that they can contribute equally without barriers (W3C Web Accessibility Initiative, 2016).

Usability is about designing products to be effective, efficient, and satisfying. Usability includes user experience design, which may include aspects that impact everyone and do not disproportionately impact people with disabilities. According to W3C, usability practice and research often does not sufficiently address the needs of people with disabilities (W3C Web Accessibility Initiative, 2016). While accessibility primarily focuses on people with disabilities, usability requirements often improve the usability for everyone.

Interoperability in health IT means the ability of a system to exchange electronic health information with and use electronic health information from other systems without special effort on the part of the user (ONC, 2019). Interoperability allows for complete access, exchange, and use of all electronically accessible health information for authorized use. Interoperability focuses on the ability of health information systems to work together.

For more information on accessibility and usability, visit the ICDR's [Assistive Technology and Universal Design Toolkit](#).

Accessibility Tools

AUTHORING TOOL ACCESSIBILITY GUIDELINES

The [Authoring Tool Accessibility Guidelines](#) explain how to make authoring tools accessible so that people with disabilities can create web content and help authors create more accessible web content. They specifically enable, support, and promote the production of content that conforms to the [Web Content Accessibility Guidelines](#).

INTERNATIONAL ASSOCIATION OF ACCESSIBILITY PROFESSIONALS

The [International Association of Accessibility Professionals](#) is comprised of accessibility professionals from around the world who come together to define, promote, and improve the accessibility profession through networking, education, and certification. The Association has [resources for both members and non-members](#).

SAFETY ENHANCED DESIGN BRIEFS

These [Safety Enhanced Design Briefs](#) from the University of Texas Health Science Center at Houston are intended for anyone who develops and implements health IT applications, particularly for electronic health records (EHRs), and who wants to learn more about human factors and design. The design briefs were written for the community of people who are working to make health care better by improving the state of EHRs. They are intended as guidelines for design and implementation, not as standards.

USER AGENT ACCESSIBILITY GUIDELINES

The [User Agent Accessibility Guidelines](#) explain how to make user agents accessible to people with disabilities. User agents include browsers, browser extensions, media players, readers, and other applications that render web content. Some accessibility needs are better met in the browser than in the web content, such as text customization, preferences, and user interface accessibility. A user agent that

follows User Agent Accessibility Guidelines 2.0 will improve accessibility through its own user interface and its ability to communicate with other technologies, including assistive technologies (software that some people with disabilities use to meet their requirements). [An overview of the Guidelines can be found here.](#)

W3C WEB ACCESSIBILITY INITIATIVE

The [W3C Web Accessibility Initiative](#) develops standards and support materials to help teach and implement accessibility. [Tips for Getting Started](#) with accessibility is a good resource to begin with. These tips introduce basic considerations for making websites more accessible to people with disabilities. Additional resources include content related to web requirements, detailed background information, guidance and tutorials, user stories, and more. Tips by activity include:

- **Designing for Web Accessibility:** Tips for user interface and visual design. This introduces basic considerations to help write web content that is more accessible to people with disabilities.
- **Writing for Web Accessibility:** Tips for writing and presenting content. This introduces basic considerations to help make web interface design and visual design more accessible to people with disabilities.
- **Developing for Web Accessibility:** Tips for markup and coding. This introduces some basic considerations to help develop web content that is more accessible to people with disabilities.
- **Business Case for Digital Case for Digital Accessibility:** This article examines the rationale for organizations to address accessibility. It includes tangible and intangible benefits, and the risks of not addressing accessibility adequately.

WEB ACCESSIBILITY IN MIND (WEBAIM)

The mission of [Web Accessibility in Mind \(WebAIM\)](#) is to expand the potential of the web for people with disabilities by providing the knowledge, technical skills, tools, organizational leadership strategies, and vision that empower organizations to make their own content accessible to people with disabilities. WebAIM has a number of [useful resources and tools](#). The [Accessibility Evaluation Tools](#), the [Testing for Web Accessibility Tool](#), and the [Web Accessibility Principles](#) are useful resources.

WORLD WIDE WEB CONSORTIUM (W3C)

The [World Wide Web Consortium \(W3C\)](#) is an international community that develops [open standards](#) to ensure the long-term growth of the web. The [W3C standards](#) define an open web platform for application development that may enable developers to build interactive experiences available on any device. The standards include several technical specifications and guidelines.

Usability Tools

CATALYZING TECHNOLOGY TO SUPPORT FAMILY CAREGIVING

This report, [Catalyzing Technology to Support Family Caregiving](#), was published by the [National Alliance for Caregiving](#). It focuses on the importance of technology for family caregivers so that innovators can better understand the needs of a caregiver. The report highlights recommendations to catalyze technology innovation to support family caregiving. Recommendations include creating more appropriate language to describe the caregiving landscape; collecting data about the prevalence, burden, and impact of caregiving; and developing a business case in support of caregivers.

GENERAL DESIGN PRINCIPLES AND GUIDELINES

EHR usability is important for physicians, nurses, and technicians. A good user interface follows established human interface design principles that are based on

the way users, such as doctors, nurses, and patients, operate. The National Center for Cognitive Informatics and Decision Making in Healthcare published **general design principles and guidelines** that can be applied when developing EHRs:

- **Consistency and standards.** Users should not have to wonder whether different words, situations, or actions mean the same thing. Standards and conventions in product design should be followed.
- **Visibility of system state.** Users should be informed about what is going on with the system through appropriate feedback and display of information.
- **Match between system and world.** The image of the system perceived by users should match the model the users have about the system.
- **Minimalist design.** Any extraneous information is a distraction and a slow-down. Less is more.
- **Minimize memory load.** Users should not be required to memorize a lot of information to carry out tasks. Memory load reduces a user's capacity to carry out the main tasks.
- **Informative feedback.** Users should be given prompt and informative feedback about their actions.
- **Flexibility and efficiency.** Users always learn, and users are always different. Give users the flexibility of creating customization and shortcuts to accelerate their performance.
- **Good error messages.** The messages should be informative enough such that users can understand the nature of errors, learn from errors, and recover from errors.

- **Prevent errors.** It is always better to design interfaces that prevent errors from happening in the first place.
- **Clear closure.** Every task has a beginning and an end. Users should be clearly notified about the completion of a task.
- **Reversible actions (undo).** Users should be allowed to recover from errors. Reversible actions also encourage exploratory learning.
- **Use a user's language.** The language should be always presented in a form understandable by the intended users.
- **Users in control.** Do not give users that impression that they are controlled by the systems. Users are initiators of actions, not responders to actions. Avoid surprising actions, unexpected outcomes, or tedious sequences of actions.
- **Help and documentation.** Always provide help when needed. This can include displaying enough instructional information or incorporating a simple or advanced search function.

INSPIRED EHRs: DESIGNING FOR CLINICIANS

The online book, [Inspired EHRs: Designing for Clinicians](#), inspires useful and usable EHR interface designs by providing clinical scenarios and insights with examples of interactive designs guided by basic design principles. It was written for anyone who develops and implements health IT applications, but specifically for EHR vendor teams who want to learn more about human factors and design. Designers who want to learn about EHR users, medical informatics students, and EHR users who want to learn more about design principles might also benefit from this resource.

USABILITY HEURISTICS FOR USER INTERFACE DESIGN

These [Usability Heuristics for User Interface Design](#) are general principles for interaction design. While these are not specific usability guidelines, they are broad rules of thumb for ensuring interface usability. The principles and guidelines include:

- **Visibility of system status.** The design should always keep users informed about what is going on through appropriated feedback within a reasonable amount of time.
- **Match between system and the real world.** The design should speak the users' language. Use words, phrases, and concepts familiar to the user rather than internal jargon.
- **User control and freedom.** Users often perform actions by mistake. They need a clearly marked exit to leave the unwanted action without having to go through an extended process.
- **Consistency and standards.** Users should not have to wonder whether different words, situations, or actions mean the same thing.
- **Error prevention.** Good error messages are important, but the best designs carefully prevent errors from occurring in the first place. Either eliminate error-prone conditions, or check for them and present users with a confirmation option before they commit to the action.
- **Recognition rather than recall.** Minimize the user's memory load by making elements, actions, and options visible. The user should not have to remember information from one part of the interface to another. Information required to use the design should be visible or easily retrievable when needed.

- **Flexibility and efficacy of use.** Shortcuts — hidden from novice users — may speed up the interaction for the expert user such that the design can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.
- **Aesthetic and minimalist design.** Interfaces should not contain information that is irrelevant or rarely needed. Every extra unit of information in an interface competes with the relevant units of information and diminishes their relative visibility.
- **Help users recognize, diagnose, and recover from errors.** Error messages should be expressed in plain language (no error codes), precisely indicate the problem, and constructively suggest a solution.
- **Help and documentation.** It is best if the system does not need any additional explanation. However, it may be necessary to provide documentation to help users understand how to complete their tasks.

Interoperability Tools

FAST HEALTHCARE INTEROPERABILITY RESOURCES (FHIR)

Fast Healthcare Interoperability Resources (FHIR) is a Health Level Seven International (HL7) standard for exchanging health care information electronically. It is an exchange framework being adopted by the health care community to advance interoperability. FHIR provides a means for representing and sharing information among clinicians and organizations in a standard way regardless of the ways local EHRs represent or store the data. FHIR combines the features of previous standards into a common specification while meeting the needs of a wide variety of use cases within the health care ecosystem. FHIR focuses on implementation and uses the latest web technologies.

INTEROPERABILITY STANDARDS ADVISORY

The [Interoperability Standards Advisory](#) process represents the model by which the ONC will coordinate the identification, assessment, and determination of the “best available” interoperability standards and implementation specifications for industry use to fulfill specific clinical health IT interoperability needs. The [2020 Interoperability Standards Advisory can be found here](#).

Federal Agencies Working on Health IT

The federal government plays an important role in the advancement of health IT through the research, projects, and initiatives it funds with the goals of strengthening the health IT infrastructure and lowering barriers to access and exchange. This includes funding and contributing to health IT research, health IT development, and health IT deployment. The federal government is also responsible for facilitating coordination across public and private sectors to align standards, promote innovation and competition, and share best practices (ONC, 2020).

Federal Communications Commission (FCC)

The **Federal Communications Commission (FCC)** is an independent U.S. government agency overseen by Congress. The Commission is the federal agency responsible for implementing and enforcing America's communications law, regulation, and technological innovation. Advisory committees provide federal departments and agencies with access to expertise and advice on a broad range of issues affecting policies and programs. The public is provided an opportunity to provide input into a process that may form the basis for government decisions.

U.S. Department of Commerce

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

The **National Institute of Standards and Technology (NIST)** was founded in 1901 and is now part of the U.S. Department of Commerce. NIST's mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve quality of life. NIST collaborates with industry and others to improve the health care information infrastructure.

U.S. Department of Health and Human Services

AGENCY FOR HEALTHCARE RESEARCH AND QUALITY (AHRQ)

The **Agency for Healthcare Research and Quality's (AHRQ)** mission is to produce evidence to make health care safe, higher quality, more accessible, equitable, and affordable and to work within HHS and with other partners to ensure that the evidence is understood and used. To do this, AHRQ focuses on three core competencies: (1) health systems research, (2) practice improvement, and (3) data and analytics. **AHRQ's Digital Healthcare Research Program** has a mission to produce and disseminate evidence about how the evolving digital health care ecosystem can best advance the quality, safety, and effectiveness of health care for patients and their families.

CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)

The **Centers for Disease Control and Prevention (CDC)** works to protect Americans from health, safety, and security threats. The CDC fights diseases and supports communities and citizens to do the same. The CDC conducts critical science and provides health information that protects the U.S. against expensive and dangerous health threats and responds when these arise.

CENTERS FOR MEDICARE AND MEDICAID SERVICES (CMS)

The **Centers for Medicare and Medicaid Services (CMS)** programs include Medicaid, Medicare, and the Health Insurance Exchanges. CMS works to empower patients to work with their doctors and make health care decisions that are best for them by giving them meaningful information about quality and costs to be active health care consumers. CMS also supports innovative approaches to improving quality, accessibility, and affordability while finding the best ways to use innovative technology to support patient-centered care.

HEALTH RESOURCES AND SERVICES ADMINISTRATION (HRSA)

The **Health Resources and Services Administration (HRSA)** is the primary federal agency for improving health care for people who are geographically isolated and economically or medically vulnerable. HRSA programs help those in need of high-quality primary health care, people with HIV/AIDS, pregnant women, and mothers. HRSA also supports the training of health professionals, the distribution of providers to areas where they are needed most, and improvements in health care delivery.

NATIONAL INSTITUTES OF HEALTH (NIH)

The **National Institutes of Health's (NIH)** mission is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability. NIH is the largest public funder of biomedical research in the world, investing more than \$30 billion in taxpayer dollars to achieve this mission. In pursuing this mission, NIH improves health by promoting treatment and prevention, contributes to society by driving economic growth and productivity, and expands the biomedical knowledge base by funding cutting-edge research and cultivating the biomedical workforce of today and tomorrow.

OFFICE OF DISEASE PREVENTION AND HEALTH PROMOTION

The **Office of Disease Prevention and Health Promotion** plays a vital role in keeping the U.S. healthy. It does this by setting national health objectives and supporting programs, services, and education activities that improve the health of all Americans. Their work and their resources include **Healthy People 2030** and evidence-based, actionable health information for consumers from **MyHealthfinder**.

OFFICE OF THE NATIONAL COORDINATOR FOR HEALTH INFORMATION TECHNOLOGY (ONC)

The **Office of the National Coordinator for Health Information Technology (ONC)** is at the forefront of the government's health IT efforts. It is located within the Office of the Secretary for HHS. ONC is a resource to the entire health system to support the adoption of health IT and the promotion of a nationwide health information exchange to improve health care. It is the primary entity charged with coordination of nationwide efforts to implement and use the most advanced health IT and electronic exchange of health information. ONC's four strategic goals are to: (1) advance person-centered and self-managed health, (2) transform health care delivery and community health, (3) foster research, scientific knowledge, and innovation, and (4) enhance the nation's health IT infrastructure.

U.S. Department of Veterans Affairs

VETERANS HEALTH ADMINISTRATION

The **Veterans Health Administration** is American's largest integrated health care system, providing care at 1,255 health care facilities that serve 9 million enrolled veterans each year. Eligible veterans can use U.S. Department of Veterans Affairs (VA) health care services nationwide, including through mobile health clinics that serve rural areas and via telehealth.

Federal Research, Resources, Initiatives, and Programs

A 10-Year Vision to Achieve an Interoperable Health IT Infrastructure

A 10-Year Vision to Achieve an Interoperable Health IT Infrastructure describes ONC's broad vision and framework for interoperability. An interoperable health IT ecosystem makes the right data available to the right people at the right time across product and organization in a way that can be relied upon and meaningfully used by recipients. This concept paper is an invitation to all health IT stakeholders to join ONC in developing a defined, shared road map that will allow the nation to collectively achieve health IT interoperability as a core foundational element of better care and better health for all.

Accessible Designs for Personal Health Records

Accessible Designs for Personal Health Records was a project to research the health information needs of people with disabilities. It sought to unite accessibility and usability to inform the future development of health IT. The project's initial findings were published in the report *Accessible Designs for Personal Health Records: Project Report and Initial Findings*. The initial findings are intended to raise stakeholder awareness, influence public policy, and inform the health IT industry about the disparities people with disabilities are experiencing as personal health record adoption rises. The research found that people with disabilities are high-volume consumers of health care, are sophisticated consumers of health care, are not satisfied with current non-personal health record tools for managing health care, and would benefit from usable and accessible personal health records.

Blue Button Initiative

The **Blue Button Initiative** symbol signifies that a site has functionality for customers to download health records. Users can use their health data to improve their health and have more control over their personal health information and their family's health care. Patient health information may be stored in many places, like doctors' offices, hospitals, and insurance companies. The Blue Button signifies that an organization has a way for users to access their health records electronically in order to share them, check them to ensure accuracy, track them, and incorporate them into apps and other tools.

Center for Connected Health Policy (CCHP)

The **Center for Connected Health Policy (CCHP)**, of the Public Health Institute, is a nonprofit, nonpartisan organization working to maximize telehealth's ability to improve health outcome, care delivery, and cost-effectiveness. CCHP actively researches and analyzes important telehealth policy issues, engages influential public and private sectors through analyses and reports, and provides key telehealth policy resources nationwide. In 2012, CCHP's scope grew to include national telehealth policy issues as it became the federally designated National Telehealth Policy Resource Center through a grant from HRSA. In this capacity CCHP serves as an independent center of excellence in telehealth policy providing technical assistance to 12 federally funded regional Telehealth Resource Centers, state and federal policymakers, national organizations, health systems, providers, and the public.

Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap

Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap presents the framework for health IT to empower individuals, families,

and caregivers through improved health management and engagement. It describes ONC's vision for how interoperability is necessary for a "learning health system" in which health information flows seamlessly and is available to the right people, at the right place, at the right time. The road map's three high-level goals for health IT interoperability reflect the progress needed to achieve a learning health system by 2024 and lay out a clear path for stakeholders who are going to build and use health IT infrastructure. ONC also published an easy-to-understand [Interoperability Roadmap Infographic](#).

Designing the Consumer-Centered Telehealth and eVisit Experience

This white paper, [Designing the Consumer-Centered Telehealth and eVisit Experience](#), covers key elements of design for consumer-centered telehealth. The white paper was informed by a session in which ONC sought to develop an informed perspective on the design and behavior considerations for consumer-centered telehealth. This work was commissioned because of the growth of telehealth and overall disruption of health care reimbursement and care delivery. With significant innovation from vendors and openness from consumers to these new delivery models, there is potential to increase convenience, improve access, and better manage costs. Ensuring the integration of telehealth into the mainstream care delivery model will require significant strategic planning.

Digital Healthcare Research Program

AHRQ's [Digital Healthcare Research Program](#)'s mission is to produce and disseminate evidence about how the evolving digital health care ecosystem can best advance the quality, safety, and effectiveness of health care for patients and their families. To fulfill its mission, AHRQ's Digital Healthcare Research Program has invested in research grants and contracts. They also host a number of [events and web conferences](#), including [A National Web Conference on the Role of Telehealth](#)

to Increase Access to Care and Improve Healthcare Quality, A National Web Conference on the Role of Health IT to Improve Care Transitions, and A National Web Conference on Effective Design and Use of Patient Portals and their Impact on Patient-Centered Care. They also have a database of research publications.

FDASIA Health IT Report: Proposed Strategy and Recommendations for a Risk-Based Framework

The **Food and Drug Administration Safety Innovation Act (FDASIA) Health IT Report** contains a proposed strategy and recommendations on an appropriate, risk-based regulatory framework for health IT that promotes innovation, protects patient safety, and avoids regulatory duplication. This report came from a mandate in Section 618 of the FDASIA of 2012 that directed the Secretary of HHS, acting through the Commissioner of the U.S. Food and Drug Administration (FDA), and in consultation with ONC and the Chairman of the FCC.

Fast Healthcare Interoperability Resources (FHIR) Fact Sheets

FHIR is an application programming interface-focused standard used to represent and exchange health information maintained by the standards development organization HL7. ONC's **FHIR Fact Sheets** are a collaborative effort with HL7 to help educate and clarify FHIR for federal employees. These two-page fact sheets summarize the key technical concepts that make up the foundation of FHIR, how it is developed in an open and public process, and why FHIR adoption has become the focus of the health IT standards world. Full details and developer documentation can be found at [HL7's FHIR website](#).

Federal Telehealth Compendium

The **Federal Telehealth Compendium** was developed by ONC in coordination with the Federal Office of Rural Health Policy within HRSA. The compendium includes a wide range of telehealth activities across agencies, including research, policy development, implementation, adoption, care delivery, standards/interoperability, and privacy. It is organized according to several sections: operating divisions and respective offices/bureaus; specific program names and brief descriptions of respective agency activities; and resources for the public to access further information. It includes many of the federal telehealth activities and is designed to be user-friendly and accessible for various stakeholders.

Health Information Technology Advisory Committee (HITAC)

The **Health Information Technology Advisory Committee (HITAC)** was established by the 21st Century Cures Act. The HITAC **provides recommendations to ONC** regarding policies, standards, implementation specifications, and certification criteria relating to the implementation of a health IT infrastructure, nationally and locally, that advances the electronic access, exchange, and use of health information.

Health Information Technology: Health IT Playbook

The **Health IT Playbook** is a tool for administrators, physician practice owners, clinicians and practitioners, practice staff, and anyone else who wants to leverage health IT. Administrators and practice owners will find help to plan, select, and implement EHRs and to meet the requirements for certified health IT. Clinicians and practitioners will learn how to optimize the safety and use of EHRs. Practice staff will be better equipped to protect the security of patient information and ensure patient safety. Resource topics include **electronic health records**, **health information exchange**, and **patient engagement**.

Health Information Technology Training and Technical Assistance Hubs

HRSA has a compilation the [Health Information Technology Training and Technical Assistance Hubs](#). HRSA funds a variety of grantees and providers through its Bureaus and Offices. Each Bureau and Office funds training and technical assistance so grantees can maximize their impact. Non-grantees such as organizations and providers who serve similar populations may also find these helpful.

- [Georgia Health Policy Center Technical Assistance](#) is a centralized resource for [Federal Office of Rural Health Policy](#) direct service grantees, the Small Health Care Provider Quality Improvement Program, Delta States Development Network Program, Rural Health Care Services Outreach Program, and additional pilot programs. This site was designed to provide up-to-date news, events, funding opportunities, and resources for grantees served by the Georgia Health Policy Center's Technical Assistance program. The goal of the site is to provide ready access to resources and facilitate peer-to-peer interaction among grantees. Website features include elearning modules, recorded webinars, featured articles, grantees in the news, a resource library, and materials from Federal Office of Rural Health Policy and Georgia Health Policy Center program meetings.
- [Health Center Resource Clearinghouse](#) is an online resource where health center staff can access a collection of training and technical assistance resources and promising practices to support their staff and implement quality, effective, and innovative operations.
- [Health Information Technology, Evaluation, and Quality Center](#) collaborates with HRSA partners to provide training and technical assistance support to health centers in full optimization of their EHR and health IT systems for continuous, data-driven quality improvement.

- **National Rural Health Association** has been serving rural communities by advancing and publicizing rural health issues and seeking to solve rural health care challenges. It is the only national organization with a clear mission to:
 - Improve the delivery of health services in rural areas through its many members and staff; and
 - Help rural citizens build, maintain, and improve the institutions that can meet their health care needs by providing research, education, leadership, and informational support.
- **National Rural Health Resource Center** provides technical assistance, information, tools, and resources for the improvement of rural health care. It serves as a national rural health knowledge center and strives to build state and local capacity. It includes webinars, toolkits, and other resources related to critical-access hospitals and other small rural providers on quality, financial, and operational improvement and population health.
- **Rural Health Information Hub** is a guide to improving health for rural residents. It provides access to current and reliable resources and tools on rural health needs and how to address them. The website offers a library of resources, coverage of rural issues, state guides, evidence-based toolkits, program models, and more. Specific or customized assistance is available by phone or email.
- **Telehealth Center of Excellence – Medical University of South Carolina** and **Telehealth Center of Excellence – University of Mississippi Medical Center** focus on the efficacy of telehealth services in rural and urban areas. They both serve as a national clearinghouses for telehealth research and resources, including technical assistance. Centers of Excellence are located in public

academic medical centers that have successful telehealth programs with high annual volume of telehealth visits and have established programs that provide telehealth services in medically underserved areas with high chronic disease prevalence and high poverty rates.

- **National Consortium of Telehealth Resource Centers** were established to provide assistance, education, and information to organizations and individuals who are actively providing or interested in providing health care at a distance.

Health IT and Patient Safety: Building Safer Systems for Better Care

The Institute of Medicine's **Health IT and Patient Safety: Building Safer Systems for Better Care** gives comprehensive recommendations for options and opportunities for public and private interventions that may improve the safety of care that incorporates the use of health IT. When designed and properly applied, health IT can be a positive transformative force for delivering care. The publication is intended for the federal government, health IT industry, health care providers and users, and advocacy groups. This publication makes recommendations for developing a framework for patient safety and health IT. It focuses on finding ways to mitigate the risks of health IT-assisted care and identifies areas of concern so that the nation is in a better position to realize the potential benefits of health IT.

Health Literacy Online

Health Literacy Online is a research-based guide to help in the development of intuitive health websites and digital tools that can be easily accessed and understood by all users, including the millions of Americans who struggle to find, process, and use online health information. The focus is on broadening access to user-friendly health information and services on the web. It is written for anyone involved in creating online health content from start to finish, i.e., writers and editors, content

managers, digital strategists, user experience strategists, web designers, developers, and others. A key point of this guide is that literacy skills affect how people find, understand, and use information on the web. Users may get distracted easily, give up quickly, and struggle with dense text and complex navigation. As many as half of U.S. adults have limited literacy skills, and nearly 9 in 10 have limited health literacy skills. Strategies outlined in this guide can break down literacy-related barriers and increase the odds of success. This guide also includes a [Health Literacy Online Strategies Checklist](#).

Healthy People 2030

Since 1980, the Healthy People Initiative has set measurable objectives to improve the health and well-being of people nationwide. A new iteration of the plan is released each decade to address the latest public health priorities and challenges. [Healthy People 2030](#) includes [targeted objectives related to health IT](#). Health People 2030 includes a focus on helping health care providers and patients access health IT and more effectively use it. Strategies to simplify and encourage the use of health IT can make electronic health information easier to access, use, and understand, making it more likely that people will have the information they need to make informed decisions about their health care. Strategies to streamline health IT systems can make it easier to electronically exchange health information and may result in improved health outcomes. The Healthy People 2030 Health IT objectives include:

- [Increase the proportion of hospitals with access to necessary electronic information available at the point of care.](#)
- [Increase the proportion of doctors who have necessary information electronically available at the point of care.](#)

- Increase the use of telehealth to improve access to health services.
- Increase the proportion of adults offered online access to their medical records.
- Increase the proportion of adults who use IT to track health care data or communicate with providers.
- Increase the proportion of hospitals that exchange and use outside electronic health information.
- Increase the proportion of doctors who exchange and use outside electronic health information.
- Increase the proportion of people who can view, download, and send their electronic health information.
- increase the proportion of people who say their online medical record is easy to understand.
- Increase the proportion of adults with broadband internet.
- Increase the proportion of vital records/health statistics programs that are nationally accredited.
- Enhance the use and capabilities of informatics, including data-sharing, data exchange, and application, to practice and use in public health decision-making.

National Health IT Priorities for Research: A Policy and Development Agenda

ONC led the development of **National Health IT Priorities for Research: A Policy and Development Agenda**. Published in January 2020, this agenda articulates a vision of health IT infrastructure that supports the alignment between the clinical and research ecosystems. The agenda outlines nine priorities, including concrete steps that stakeholders can take to achieve that vision and enable research to happen more quickly and effectively. The strategies and actions are intended to address relevant data, tools, and infrastructure needs over the next three to five years, enabling researchers to pursue more complex questions and make faster, more reliable discoveries. The overarching goals and priority areas are as follows:

Goal 1: Leveraging high-quality electronic health data for research

- Priority 1: Improve data quality at the point of capture
- Priority 2: Increase data harmonization to enable research uses
- Priority 3: Improve access to interoperable electronic health data

Goal 2: Advancing a health IT infrastructure to support research

- Priority 4: Improve services for efficient data storage and discovery
- Priority 5: Integrate emerging health and health-related data sources
- Priority 6: Improve methods and tools to support data aggregation
- Priority 7: Develop tools and functions to support research
- Priority 8: Leverage health IT systems to increase education and participation
- Priority 9: Accelerate integration of knowledge at the point of care

National Telehealth Policy Resource Center

The **National Telehealth Policy Resource Center**, a project of CCHP, monitors both state and federal legislation, identifies barriers to telehealth use, and provides policy technical assistance to the regional telehealth resource centers and state and federal policymakers. Along with the National Telehealth Technology Assessment Resource Center, CCHP and the 12 regional Telehealth Resource Centers comprise the National Consortium of Telehealth Resource Centers. This consortium works to assist health care professionals and organizations with operating cost-effective telehealth programs for medically underserved communities in their regions. CCHP also serves as the lead administrator of the National Consortium of Telehealth Resource Centers.

NISTIR (7804) Technical Evaluation, Testing, and Validation of Electronic Health Records

NIST has a number of research resources on health IT. Their research seeks to help improve the quality and availability of health care and reduce health care costs by enabling the establishment of an emerging health IT network that is correct, complete, secure, usable, and testable. The **NISTIR (7804) Technical Evaluation, Testing and Validation of the Usability of Electronic Health Records** was published in 2012. The validation study procedure guides the reader to help ensure the application user interface is free from critical usability issues and supports error-free user interaction with EHRs. The EHR Usability Protocol encompasses procedures for (1) expert evaluation of an EHR user interface from a clinical perspective and a human factors best practices perspective, and (2) validation studies of EHR user interfaces with representative user groups on realistic EHR tasks. The intent of the EHR Usability Protocol is to provide detailed systematic steps for conducting validation studies.

Office of Assistant Secretary for Preparedness and Response

As part of the Telehealth Webinar for Community-Based Organization Series, this recorded webinar, [Promising Practices - Accessibility and Language Access](#), focuses on telehealth accessibility for individuals with access and functional needs and individuals with limited English proficiency. It highlights strategies for ensuring access to older adults and people with disabilities and addresses cultural and linguistic competency when providing telehealth services.

ONC Data Briefs

ONC has created several original data briefs providing information about EHR adoption, progress toward meaningful use, and current trends in health IT and public health. Each data brief conveys complex statistical data and summarizes it in a straightforward manner using text and graphics. [All data briefs can be found here](#). Data brief topics include:

- [Access and Use of Electronic Health Information by Individuals with Cancer](#)
- [State of Interoperability among Major U.S. Cities](#)
- [Variation in Methods for Health Information Management among U.S. Substance Abuse Treatment Centers](#)
- [Disparities in Individuals' Access and Use of Health Information Technology](#)

ONC Health IT Certification Program

The [ONC Health IT Certification Program](#) is a voluntary certification program established to provide for the certification of health IT. Requirements for certification are established by standards, implementation specifications, and certification criteria

adopted by the Secretary. The Program supports the availability of certified health IT for its encouraged and required use under other federal, state, and private programs. The Program is run as a third-party product conformity assessment scheme for health IT based on the principles of the International Standards Organization and International Electrotechnical Commission framework.

ONC Issue Briefs

ONC has published several [issues briefs](#) touching on a variety of topics. The last issue brief was published in 2015 and provides background resources and research related to health IT. Issue briefs include:

- [Recent Evidence that Health IT Improves Patient Safety](#). This issue brief was part of ONC's ongoing effort to help answer questions and demonstrate the role of health IT in patient safety.
- [Data Sharing to Enable Clinical Transformation at the Community Level](#). This brief examines the Beacon Communities approaches to and experience with building and strengthening their health IT infrastructure, specifically regarding data sharing to enable clinical transformation.
- [Health IT for Public Health Reporting and Information Systems](#). This brief describes electronic public health reporting progress for population health, addressing disparities, and public health preparedness. It also discusses opportunities to improve public health reporting and information systems.
- [Using Health IT to Put the Person at the Center of their Health and Care by 2020](#). This issue brief develops the health IT policy framework for achieving a more person-centric vision for effective health management by individuals, their caregivers, and their health care teams supported by health IT.

ONC Strategic Plan

The [2020-2025 Federal Health IT Strategic Plan](#) outlines federal health IT goals and objectives, with a focus on individuals' access to their electronic health information. It was developed by ONC in collaboration with more than 25 federal organizations and informed by public comment. The Plan demonstrates the federal government's ongoing, coordinated focus on improving access, exchange, and use of electronic health information. The Plan explains how the federal government intends to use health IT toward four goals. Each of the four goals includes specific objectives and strategies. These should not be viewed as sequential, but as interdependent with the collective purpose of improving health of individuals, families, and communities. These four goals are to:

1. Promote health and wellness;
2. Enhance the delivery and experience of care;
3. Build a secure, data-driven ecosystem to accelerate research and innovation; and
4. Connect health care and health data.

Promoting Interoperability Programs

In 2011, CMS established the Medicare and Medicaid EHR Incentive Program, now known as the [Promoting Interoperability Programs](#), to encourage eligible professionals, eligible hospitals, and critical-access hospitals to adopt, implement, upgrade, and demonstrate meaningful use of certified EHR technology. The name change moved the programs beyond the existing requirements of meaningful use to a new phase of EHR measurement with an increased focus on interoperability and improving patient access to health information.

Rural Telehealth Initiative

In August 2020, the FCC, HHS, and U.S. Department of Agriculture signed a Memorandum of Understanding to work together on the **Rural Telehealth Initiative**, a joint effort to collaborate and share information to address health disparities, resolve service provider challenges, and promote broadband services and technology to rural areas in America. As part of this MOU, the agencies intend to establish an interagency Rural Telehealth Initiative Task Force comprised of representatives from each agency. This Task Force will regularly meet to consider future recommendations or guidelines for this effort and exchange agency expertise, scientific and technical information, data, and publications.

Strategic Health IT Advanced Research Project (SHARP)

The **Strategic Health IT Advanced Research Projects** (SHARP) Program seeks to support improvements in the quality, safety, and efficacy of health care through advanced IT. The SHARP Program grants were awarded to four universities and health care organization that are leading the way in health IT research and innovation. The projects were carried out at University of Illinois at Urbana-Champaign (**SHARPS**), the University of Texas Health Science Center at Houston (**SHARPC**), Harvard University (**SMART Platforms**), and the Mayo Clinic (**SHARPN**). The four-funded research program focused on:

1. **Security and health IT.** Develop technologies and policies to increase security safeguards and reduce risk; develop technologies to build and protect public trust.
2. **Patient-centered decision-making support.** Use the power of health IT to integrate and support doctors' reasoning and decision-making as they care for patients.

3. **Health care application and network design.** Create new and improved system designs to achieve information exchange and ensure privacy and security of electronic health information.
4. **Secondary use of EHR information.** Develop strategies for using information stored in EHRs for improving the overall quality of health care while maintaining the privacy and security of protected health information.

SMART HEALTH IT

SMART Health IT was launched to transform EHRs into a platform for substitutable iPhone-like apps. Innovations in care delivery models, physician workflow, artificial intelligence, big data analytics, learning health system, and precision medicine need a nimble, rapidly evolving set of open technologies to support an evolving ecosystem. The SMART Health IT project run out of the Boston Children’s Hospital Computational Health Informatics Program advances that ecosystem. The best-known invention is the SMART on the FHIR application programming interface, which enables an app written once to run anywhere in the health care system. Many more SMART team innovations are beginning to take hold at the national and international levels.

STRATEGIC HEALTH IT ADVANCED RESEARCH PROJECTS ON SECURITY (SHARPS)

The **Strategic Health IT Advanced Research Projects on Security (SHARPS)** was an interdisciplinary and multi-institutional collection of projects supported by the ONC. It developed technologies and policy insights concerning the requirements, foundations, design, development, and deployment of security and privacy tools and methods as they apply to health IT. There were **64 projects** organized into **four clusters**. The primary goals of SHARPS were to advance security and privacy technologies and policies to remove key barriers that limit the use of valuable health information and to develop an integrated security and privacy research community for health IT that will continue following the culmination of the SHARPS program.

STRATEGIC HEALTH IT ADVANCED RESEARCH PROJECTS ON PATIENT-CENTERED COGNITIVE SUPPORT (SHARPc)

The **National Center for Cognitive Informatics and Decision Making in Healthcare** is funded by the ONC under the SHARP Program to focus on patient-centered cognitive support. The National Center is a consortium of many institutions led by the University of Texas Health Science Center at Houston. Their research themes include design of human-centered health information systems and distributed cognition and its applications to health care, among others.

STRATEGIC HEALTH IT ADVANCED RESEARCH PROJECTS ON SECONDARY USE OF EHR DATA (SHARPn)

The **Strategic Health IT Advanced Research Projects on Secondary Use of EHR Data** set out to enhance patient safety and improve patient medical outcomes with EHRs. The mission is to enable the use of EHR data for secondary purposes, such as clinical research and public health. By creating tangible, scalable, and open-source tools, services, and software for large-scale health record data sharing, the project aimed to ultimately help improve the quality and efficiency of patient care using an electronic health care record.

Strategy on Reducing Burden Relating to the Use of Health IT and EHRs

HHS released a comprehensive strategy to reduce the regulatory and administrative burden related to the user of health IT, including EHRs. The *Strategy on Reducing Regulatory and Administrative Burdens Relating to the User of Health IT and EHRs* targets burdens tied to regulatory and administrative requirements that HHS can directly impact through the rulemaking process. The report was a collaborative effort between ONC and CMS. The strategies, recommendation, and policy shifts found in the report aim to give clinicians more time to focus on caring for their patients.

Telehealth.HHS.gov

The [Telehealth.HHS.gov](https://www.telehealth.hhs.gov) website provides information about the latest federal efforts to support and promote telehealth services. Built by HRSA, it includes resources for [patients](#) to help them understand what telehealth is and what to expect, and for [providers](#) to help them integrate telehealth into their care delivery.

VA Telehealth

The [VA Telehealth Services](#) uses telehealth innovation to make sure veterans can access care when and where they need it. VA Telehealth Services aims to make it easier for veterans to connect with their VA care team from home, clinics, or the hospital. VA's innovative telehealth technologies provide mobility and enhanced access to care, connecting patients with their care team and specialists. Remote monitoring devices and tools such as [VA Video Connect](#) help bring providers closer to patients. VA telehealth also works with digital health tools like [MyHealthVet](#) and VA mobile apps. Using VA telehealth technologies, patients can send health data to their VA care team from home. With more data, providers can tailor treatment specifically to their patients' needs and improve the care they receive.

Policy Initiatives Impacting Health IT

21st Century Cures Act

The patient is at the center of the **21st Century Cures Act**. Putting patients in charge of their health records is a key piece of patient control in health care, and patient control is at the center of the work toward a value-based health care system. The **ONC Cures Final Rule** implements interoperability requirements outlined in the Cures Act. Patients need more power in their health care, and access to information is key to making that happen. Putting the patient first in health technology enables the health care system to deliver transparency into the cost and outcomes of their care, competitive options in getting medical care, modern smartphone apps to provide them convenient access to their records, and an app economy that provide patients, physicians, hospitals, payers, and employers with innovation and choice. For the American public as a whole, the final rule promotes innovation in the health care technology ecosystem to deliver better information, more conveniently, to patients and clinicians. It also promotes transparency, using modern computers, smartphones, and software to provide opportunities for the American public to regain visibility in the services, quality, and costs of health care. More information about what the Cures Act means for different groups can be found here: [for patients](#), [for doctors and hospitals](#), and [for health IT developers](#).

Assistive Technology Act of 1998 and 2004

The **Assistive Technology Act of 1998** provides states and territories with financial assistance that supports programs designed to maximize the ability of individuals with disabilities to obtain assistive technology devices and services. It was amended in 2004 to ensure the continued existence of a major source of funding

for assistive technology. The amended legislation made significant strides toward providing appropriate assistive technology for every person who needs it.

Federal Information Technology Acquisition Reform Act (FITARA)

The **Federal Information Technology Acquisition Reform Act (FITARA)** was passed by Congress in December 2014. This law represents the first major overhaul of federal IT. Since FITARA's enactment, the Office of Management and Budget published guidance to agencies to ensure that the law is applied consistently government-wide in a way that is workable and effective. To assist agencies in implementation, the Office of Management and Budget released [guidance on implementation](#).

Food and Drug Administration Safety and Innovation Act (FDASIA)

Section 618 of the **Food and Drug Administration Safety and Innovation Act (FDASIA)** of 2012 directed the Secretary of Health and Human Services, acting through the Commissioner of the U.S. Food and Drug Administration (FDA), and in consultation with ONC and the Chairman of the FCC, to develop a report that contains a proposed strategy and recommendations on an appropriate, risk-based regulatory framework for health IT, including medical mobile applications, that promotes innovation, protects patient safety, and avoids regulatory duplication. The Health IT Policy Committee formed a [workgroup and issued recommendations to ONC, the Food and Drug Administration \(FDA\), and the FCC as of the September 4, 2013, Health IT Policy Committee meeting](#).

Health Information Technology for Economic and Clinical Health (HITECH) Act

The **Health Information Technology for Economic and Clinical Health (HITECH) Act** stimulated significant health IT adoption and exchange of electronic health

information. HITECH's goal is for every American to have access to their electronic health information. The [HITECH Act of 2009](#) provides HHS with the authority to establish programs to improve health care quality, safety, and efficiency through the promotion of health IT, including EHRs and private and secure electronic health information exchanges. Learn more about [select portions of the HITECH Act that relate to ONC's work](#).

Health Insurance Portability and Accountability Act (HIPAA)

The [Health Insurance Portability and Accountability Act \(HIPAA\) of 1996](#) protects health insurance coverage for workers and their families when they change or lose their jobs, requires the establishment of national standards for electronic health care transactions, and requires establishment of national identifiers for providers, health insurance plans, and employers. The HHS Office for Civil Rights administers the HIPAA Privacy and Security Rules.

- The [HIPAA Privacy Rule](#) describes what information is protected and how protected information can be used and disclosed.
- The [HIPAA Security Rule](#) describes who is covered by HIPAA privacy protections and what safeguards must be in place to ensure appropriate protection of electronic protected health information.

Section 1557 of the Affordable Care Act

[Section 1557 of the Affordable Care Act](#) is the nondiscrimination provision of the Affordable Care Act. The law prohibits discrimination on the basis of race, color, national origin, sex, age, or disability in certain health programs or activities. It implements protections for individuals with disabilities and extends to the insurers participating in the health insurance marketplace. Section 1557 has been in effect

since its enactment in 2010, and the HHS Office for Civil Rights has been enforcing the provision since it was enacted.

VA MISSION Act

The **VA MISSION Act** gives veterans greater access to health care in VA facilities and the community, expands benefits for caregivers, and improves the VA's ability to recruit and retain the best medical providers. As part the MISSION Act, the VA is giving more family caregivers access to the Program of Comprehensive Assistance for Family Caregivers to support them as they care for veterans.

Non-Federal Initiatives and Resources

OpenNotes

OpenNotes is an international movement committed to spreading and studying the effects of transparent communication among patients, families, and clinicians. It is not software or a product, but rather a call to action. OpenNotes is motivated by evidence that indicates that the quality of care improves when health professionals offer patients and families access to clinical notes. OpenNotes provides tools and resources that help clinicians and health care systems share notes with patients.

PEDSnet

PEDSnet is a pediatric learning health system and national platform that can support research and improve use cases. PEDSnet has adopted the learning health system model for improving outcomes and is contributing to the formation of a national-scale pediatric learning health system. PEDSnet is dedicated to discovering and implementing new ways of providing the best care and improving health care outcomes.

Areas of Future Focus

Based on the collection of the above federal and non-federal resources, the ICDR has identified the following as key areas of continued and future focus to ensure the accessibility and usability of health IT for all users.

- 1. Improve individual access to usable health information.** A key component to successful expansion of usable health IT is ensuring that all individuals have access to their health information. Healthy People 2030 also notes the importance of increasing the use of telehealth to improve access to health services (Office of Disease Prevention and Health Promotion, 2020). According to ONC, this is still a key area of focus. Improving access for populations in rural areas, people with disabilities, racial and ethnic minorities, and those with low socioeconomic status should be prioritized to achieve equitable care outcomes for all (ONC, 2020).
- 2. Continue data collection.** Health IT is constantly evolving; there should be a continuous collection of data on how all users interact with it to help inform this evaluation. This includes continuing to collect extensive data about the changes in prevalence, burden, and impact of the use of these technologies.
- 3. Ensure that users with disabilities, older adults, and caregivers are integrated into health IT development and innovation.** Integrating these users into development and innovation can be done by creating “concept maps” to better understand their needs (National Alliance for Caregiving, 2014). Understanding their needs and how they will use health IT can help to create better language that speaks to these needs that can be incorporated throughout the development process.

4. **Promote new technologies.** New technologies are continuously developed across both the public and private sectors. Technologies such as wearables, expanded telehealth, and new or enhanced remote patient monitoring devices will continue to expand health services to end users. (ONC, 2020). Keeping a focus on these new technologies and incorporating accessibility and usability into their development will help to increase access.

5. **Increase the proportion of doctors and hospitals with access to usable health IT.** Patients who have access to their electronic health information have better control over their health care. To get here, doctors and hospitals need to have access to usable health IT. As part of increasing the patient use of health IT, Healthy People 2030 identified the need to focus on increasing the access and use of health IT among doctors and hospitals (Office of Disease Prevention and Health Promotion, 2020).

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